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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,550	11/19/2001	Shin-Ichi Shimizu	215279US3PCT	8600
22850 7590 03/26/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER DOUGLAS, JOHN CHRISTOPHER	
			ART UNIT 1764	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		03/26/2007	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/26/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/926,550	SHIMIZU ET AL.	
	Examiner	Art Unit	
	John C. Douglas	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Examiner acknowledges the response filed on 12/21/2006 containing remarks.

The rejection is maintained:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friday et al. (US 6,183,627) in view of Gandman (US 5944961).

The Friday reference discloses a process for treating a hydrocarbon feed such as a heavy crude oil. The process comprises passing the heavy oil to a distillation zone to separate the oil into a distillate stream and a heavy fraction. The distillate, which contains light, middle range, and heavy distillates, would necessarily contain the claimed gas oil, kerosene, and naphtha fractions. Since the distillation zone can contain at least two separate vessels with the ultimate pressure being subatmospheric (i.e., vacuum), the first vessel can be considered to be the claimed pre-separation apparatus and the second can be considered to be the claimed main separation apparatus. The distillate stream is then passed to a hydrotreating zone as a combined stream and is subjected to hydrotreating reactions including desulfurization and hydrogenation. The heavy fraction recovered from the bottom of the distillation zone is passed to a thermal cracking zone to produce thermally cracked product. The thermally cracked product is then returned to the distillation zone. See column 4, line 62 through column 6, line 37 and the figure.

The Friday reference does not disclose the step of thermally cracking the heavy oil content obtained directly from the bottom of the distilling section, does not disclose the relative amount of heavy oil separated as in claim 3, does not disclose that the heavy oil separated in the distillation step contains substantially neither gas oil nor

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vacuum gas oil content, does not disclose that there is no heavy oil contained in the thermal cracking residue, and does not disclose a step of removing the residues of pitch or coke from the thermal cracking section.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to eliminate the solvent deasphalting step of Friday and thus directly pass the heavy oil from the distillation section to the thermal cracker because the elimination of a step along with its function has been held to be prima facie obvious. *Ex parte Wu*, 10 USPQ 2031 (Bd. Pat. App. & Inter. 1989)

Additionally, it would have been obvious to eliminate the solvent deasphalting step of Friday because the removal of asphaltenes permits the operation of the cracker at more severe conditions and higher conversion. If one could put up with lesser conversion with reduced costs from the elimination of the deasphalting step, one would be motivated to eliminate the deasphalting step. Also, by eliminating this step, residues of coke and pitch would be produced.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the Friday reference by separating heavy oil in the relative amounts claimed because the Friday reference does not disclose the boiling range for the heavy oil. Therefore, one having ordinary skill in the art would recovery any amount of heavy oil that would provide the required boiling range material for the cracking step.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Friday by assuring that the

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heavy oil separated in the distillation step does not contain gas oil because such gas oil fractions are valuable and would not necessarily benefit from being thermally cracked.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the Friday reference by assuring that none of the heavy oil is contained in the thermal cracking residue because 100 percent conversion will result in the maximum production of the lighter cracked oil product.

Also, Gandman discloses of step of injecting a liquid solution in order to remove coke from a thermal cracking furnace (see Gandman, column 3, line 65 – column 4, line 3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Friday to include of step of injecting a liquid solution in order to remove coke from a thermal cracking furnace.

Response to Arguments

Applicant's arguments filed on 12/21/2006 have been fully considered but they are not persuasive.

Applicant first argues that the thermal cracking of Friday is mild thermal cracking and that the thermal cracking of Applicant's invention is severe thermal cracking. However, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., severe thermal cracking) are not recited in the rejected claim(s). Although the

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claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's second argument is that the removal of the solvent deasphalting in Friday would be impracticable because the thermal cracking section would shut down due to coke deposition over time. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, the Friday reference is modified by the Gandman reference. Gandman teaches a step of removing and inhibiting coke and deposit formation (see Gandman, col. 3, ln. 65 – col. 4, ln. 3). Thus, the addition of Gandman addresses the issue of the coke deposition of Friday.

Applicant's third argument is that 100% conversion cannot be obtained by the "mild thermal cracking in Friday". Friday discloses that the thermal cracking be performed under severe conditions, thereby maximizing the generation of distillate products (see Friday, col. 3, ln. 39-42). The maximizing of distillate generation under severe conditions would lead to a 100% conversion.

Applicant's fourth argument is that Gandman is concerned with smaller scale operations than that of Friday and the invention. However, according to *In re Rinehart*, 531 F.2d 1048 (CCPA 1976), the mere scaling up of a process does not establish patentability (see MPEP 2144.04 IV. A.).

◦

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C. Douglas whose telephone number is 571-272-1087. The examiner can normally be reached on 7:30 A.M. to 4:30 P.M..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCD

3/16/07


GLENN A. CALDA
PRIMARY EXAMINER
TC GROUP 1700